WHAT IS CLAIMED IS

1. A process for producing 1,3-dichloroacetone which comprises (1) chlorinating acetone to form monochloroacetone, and

(2) disproportionating the monochloroacetone in the presence of a platinum catalyst, a chloride source, water and, optionally, a strong acid to produce acetone and 1,3-dichloroacetone.

2. The process of Claim 1 wherein the platinum catalyst is selected from the group consisting of $PtCl_4^{-2}$, PtO_2, chloroplatinic acid, ammonium chloroplatinate, and polyamine platinum salts.

3. The process of Claim 1 wherein the strong acid is hydrochloric acid.

4. A process for producing epichlorohydrin which comprises (1) chlorinating acetone to form monochloroacetone; (2) disproportionating the monochloroacetone in the presence of a platinum catalyst, a chloride source, water and, optionally, a strong acid to produce acetone and 1,3-dichloroacetone; (3) hydrogenating the 1,3-dichloroacetone in the presence of a catalyst to produce 1,3-dichlorohydrin; and (4) cyclizing the 1,3-dichlorohydrin with a base to produce epichlorohydrin.

6. The process of Claim 5 wherein the hydrogenating agent is molecular hydrogen, an alcohol, or a combination thereof.

7. The process of Claim 5 wherein the catalyst is a heterogeneous transition metal-containing catalyst.

8. The process of Claim 5 wherein the hydrogenating agent is molecular hydrogen.

9. The process of Claim 5 wherein the 1,3-dichloroacetone produced in step (2) is hydrogenated without removing a chlorine atom through the formation of HCl.

10. The process of Claim 5 wherein the 1,3-dichlorohydrin produced in step (3) is cyclized to produce epichlorohydrin by contacting it with a strong base.

11. The process of Claim 5 wherein the strong base is an aqueous alkali metal hydroxide.